DEPARTMENT OF THE ARMY
Omaha District, Corps of Engineers
7410 U. S. Post Office and Court House
Omaha, Nebraska 68102

DR 690-2-500

MROVP

Regulation
No. 690-2-500

8 April 1969

CIVILIAN PERSONNEL

Training and Development Program for Hydroelectric Power Plant Personnel

1. Purpose. This regulation prescribes District policies and procedures for hydroelectric power plant training.

2. Scope. The scope includes selected personnel policies, regulations, and requirements pertaining to hydroelectric power plant training.

3. Applicability. It applies to all power plant operations and maintenance employees of the Omaha District.

4. Reference.

ER 690-2-513.

5. Objective. The objective of the Omaha District is to insure uniformity in training and development of power plant personnel.

6. Program Plan.

a. All employees below journeyman level are required to complete International Correspondence School instruction units in accordance with Appendix II and examinations described under "Student Progress and Evaluation." Journeyman recruitees who have not taken this program are required to complete ICS courses under Appendix III to become elegible for promotion.

b. The program consists primarily of on-the-job training with related instruction through the International Correspondence School. The correspondence instruction will provide basic theoretical background necessary for proper understanding of project operations. The on-the-job portion of each trainee's work assignment will permit practical application of the basic theories learned from lessons. On-the-job training will consist of working with journeyman operators and maintenance personnel. The program consists of a total of four years of lesson assignments and on-the-job training (see Appendix I).

c. Trainees, having completed the instruction prescribed, will be encouraged to take portions of the third and fourth year correspondence

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THIS REGULATION REPLACES DR 690-2-500 DATED 31 JULY 1967.

These pages 2, 3, 4, and added Appendix VII constitute Change 1 to DR 690-2-500, 8 April 1969.

lessons listed for the field other than the one in which they are enrolled. Extra on-the-job study time will not be permitted for this supplemental instruction.

7. Trainee Input Requirements. The District Engineer will recommend to the Division Engineer the number of trainees needed by the Omaha District. Allocation of spaces authorized by the Division Engineer will be based on the recommendations of the Chief, Operations Division, and the Civilian Personnel Officer, after the latter has analyzed requirements of existing projects, and projects under construction. Trainee input requirements should be projected far enough in advance to assure that adequately trained personnel are available when required. In determining input requirements, considerations will be given to anticipated personnel losses together with modifications or changes in operating and maintenance practices that will affect staffing of existing or future projects. Exceptions to trainee input at Part 1 level are for operator at Part III level and for electronics trainee at Part III level. These will be used only when the program fails to produce an operator or electronics trainee and will be controlled by the District to meet overall staffing needs. The trainees, Part III, recruitees will meet the following requirements.

a. Must have had at least two years qualifying experience as an operator or for the electronics trainee must have had two years experience in maintenance, adjustment and functional operation of electronic type of equipment.

b. Must have received a passing score on the Civil Service Commission examination.

c. Completion of four year program for ICS instruction units in accordance with Appendix II for the operator trainee and Appendix VII for electronics trainee.

d. On satisfactory completion of two years the trainee will be promoted to journeyman operator "A," if a vacancy exists. If no vacancy exists will be reassigned as operator "B." (Electronic trainee same)

e. Will be required to complete the remaining two years of ICS Courses as journeyman or as operator "B." (Electronic trainee same)

8. Development and Qualification for Promotion Above the Journeyman Level.

a. To become eligible for promotion to senior electrician or mechanic, or to shift operator, journeyman must:

(1) Have at least three (3) years experience in a hydroelectric power plant with a capacity of 100,000 kw. or more; at least one of those

years as a journeyman.

(2) Pass the oral examination for journeyman.

(3) If the regular four year program has not been completed will be required to take the ICS training listed in Appendix III.

b. Advance study and self-development courses training selected by the employee and his supervisors to contribute to the individual employee's development, will be considered when selections are being made for promotion to supervisory positions.

9. Correspondence Instruction Procedures. ICS will furnish the material and administer the required correspondence lessons required for this training program as listed in Appendix I. Procedures are contained in Appendix IV.

10. Program Administration.

a. Basic Eligibility for Entering Program. Current employees desiring to participate must apply in accordance with the District Merit Placement and Promotion Program (DR 690-1-101). Applicants must pass the Civil Service Commission examination.

b. Filling Vacancies. Each project will maintain the total numbers of electricians, mechanics and operators within ceiling allocations, prescribed by the District Office. All trainees and B grade operators, electricians, and mechanics are under MRD ceiling.

(1) When a journeyman vacancy occurs it must be filled promptly to avoid excessive overtime, in order of preference as follows:

(a) Promotion of a trainee "B", within the powerplant where the vacancy occurs. (Does not need to be advertised.)

(b) Promotion of trainee completing Part IV within powerplant where vacancy occurs. (Need not be advertised if entry into training program was competitive.)

(c) Detail of a trainee/IV who is expected to qualify as journeyman within 120 days of the date the vacancy occurs, at the powerplant. (Need not be advertised.)

(d) Reassignment of qualified applicant who is performing powerplant duties (electrician, mechanic, or operator) and who is employed in powerplant where vacancy exists. (Need not be advertised.)

(e) Reassignment of journeyman upon application or promotion of a trainee "B", if available within the District. (Must be advertised.)

* (f) If there are no District journeyman or trainee "B" applicants then each trainee "B" in turn by longest time in grade would be given three working days to submit a statement of intent. He would be allowed two choices to fill a vacancy through promotion or remain as trainee "B". On each refusal his name would go to the bottom of the list. On third offer if he chose not to take the promotion he would be separated from service. *

* (g) Transfer and detail of a trainee/IV who is expected to qualify as journeyman within 120 days after the vacancy occurs if available in the District. Eligible and interested trainees should apply when a journeyman level is advertised. *

(h) Selection of Omaha District applicant who is qualified by other than MRD Hydro power plant training program.

(i) Recruitment from outside at journeyman grades if not otherwise filled from within the District.

* (2) Transfer from MRD Ceiling. When a vacancy occurs as a "B" level operator, electrician, mechanic, or any level trainee, immediate action will be taken to obtain a trainee in accordance with paragraph 7, Trainee Input Requirements. Prompt action must be taken to keep MRD spaces filled. *

c. On-the-Job Training. The time required to complete lessons may vary. Trainees need work experience related to the lessons they study. Therefore, * trainees' on-the-job training time can be considered productive effort. The rotational job assignments should afford equal opportunity to gain experience in all phases.

d. Class or Study Periods. An average of five hours per week during regularly scheduled working hours will be made available for class or study time for all required ICS trainees, Part I through Part IV. The manner in which this time will be allocated is left to the discretion of the Area Engineer. With the amount of time allocated for classes or study, it is anticipated that the more proficient student will be able to complete all of the assignments within working hours. The average trainee, may have to devote a small amount of time in study outside the working hours.

e. Student Progress and Evaluation.

(1) Periodic examination and evaluation of on-the-job performance must be completed on each trainee. This process will be accomplished approximately every six months by an Examining Board consisting of a minimum of three people who possess sufficient knowledge of the trainee and plant operation and maintenance procedures to fairly evaluate his progress. One member of the District Operations Division will serve as chairman. Another member will be the power * plant superintendent or assistant superintendent. The additional member will be appointed by the Area Engineer. The Examining Board will determine if trainee is recommended for continuation in the program. Trainee Evaluation Statement, ENG Form 2877, will be used to reflect the joint opinion of the board. Forms will be completed in triplicate and forwarded THRU: Chief, Operations Division, TO: Personnel Office, ATTN: Training and Development Branch. Each member of the board will sign the form as "Examining Board Member" in the blank reserved for "Other Comments". The form will also include the following statement testifying to the trainees'

APPENDIX VII

HYDROELECTRIC POWER PLANT PERSONNEL - SCHEDULE OF TRAINING FOR ELECTRONIC TRAINEES RECRUITED AT PART III LEVEL

ELECTRONIC TRAINEE (Part III, 1st Half)

Serial No.	Instruction Text Titles	Instruction Units
6750A-F	Practical Arithmetic	6
5633A-D	Elements of Algebra	4
5983A-B	Practical Geometry	2
5254	Logarithms	1
5514A-B	Plane Trigonometry with 5515 Trigonometric Tables	2
	Total	15

Electronic Trainee (Part III, 2nd Half)

Serial No.	Instruction Text Titles	Instruction Units
2020	Basic Electronic Components and Schematic Symbols	1
4010A-C	Electricity and Magnetism	3
4015A-E	AC Circuits	5
6459	Semiconductor Diodes and Transistors	1
3517	Tuned Circuits	1
2021	Understanding and Using Electronics Diagrams	1
6660	Radio Communications Fundamentals	1
6598	Batteries and Electronic Power Supplies	1
6635A-B	Electrical Blueprint Reading	1
6634A-B	Electrical Schematic Diagrams	2
	Total	17

ELECTRONIC TRAINEE (Part IV, 1st Half)

Serial No.	Instruction Text Titles	Instruction Units
6601	Theory of Rl, RC and RLC Circuits	1
2010	Vacuum Tube Fundamentals	1
3503	Vacuum Tube Amplifiers	1
6615	Electronic Oscillators	1
6605	Electronic Detectors	1
6709	AM and FM Radio Receiving Systems	1
6515	Radio-Frequency Circuits	1
3508	Cathode-Ray Tubes	1
5963	Industrial Electron Tubes	1
6078	Sound	1
3307	Transformers in Radio and Electronics	1
6687	D-C Generators and Motors	1
6698	A-C Motors, Generators and Rectifiers	1
	Total	13

ELECTRONIC TRAINEE (Part IV, 2nd Half)

Serial No.	Instruction Text Titles	Instruction Units
6525	Fundamentals of Electronic Instrumentation and Controls	1
6437	Components and Circuits in Electronic Data Processing Machines	1
6554	Principles of Digital and Analog Computers	1
6520A-B	Ultrasonics	2
6531A-B	Electronic Test Instruments	2
6329A-H	Electronics in Industry	8
	Total	15

The above four parts of training (nominally require 2 years) constitute ICS Industrial Electronic Technician course 003.181.

ELECTRONIC JOURNEYMAN OR ELECTRONIC TRAINEE "B" (1st year, 1st Half)

Serial No.	Instruction Text Titles	Instruction Units
6517	Industrial Rectifiers and Converters	1
6514A	Carrier Systems Part I	1
6537	Telemetering	1
2162	Fundamental Transmitter Systems	1
6328	Transistors and Their Applications	1
5125	FM Receivers	1
5589	Industrial Motor Applications	1
6699A-B	Industrial Motor Control	2
4342	Efficiency Tests	1
	Total	10

ELECTRONIC JOURNEYMAN OR ELECTRONIC TRAINEE "B" (1st Year, 2nd Half)

Serial No.	Instruction Text Titles	Instruction Units
6613	Switchgear	1
4368	Voltage Regulators for Generators	1
4369	Line Voltage Regulators	1
6707A-D	Watthour Metering	4
5360A-B	Storage Batteries	2
5616C	Electricity, Part 3	1
	Total	10

ELECTRONIC JOURNEYMAN OR ELECTRICIAN TRAINEE "B" (2nd Year, 1st Half)

Serial No.	Instruction Text Titles	Instruction Units
5510	Field Coil & Brush Maintenance	1
5509	Direct-Current Armature Repair	1
6585	Reconnecting Induction Motors	1

ELECTRONIC JOURNEYMAN OR ELECTRICIAN TRAINEE "B" (2nd Year, 1st Half) Cont'd.

Serial No.	Instruction Text Titles	Instruction Units
6631A-B	A-C Motor Repair	2
3317	Superheterodyne Receivers	1
4538A-B	Protective Relaying	2
6589A-B	Electric Power Generating Stations	2
	Total	10

ELECTRONIC JOURNEYMAN OR ELECTRICIAN TRAINEE "B" (2nd Year, 2nd Half)

Serial No.	Instruction Text Titles	Instruction Units
6590A-B	Electric Power Substations	2
6718A-C	Hydraulic Turbines	3
6296A-E	Modern Supervision	5
	Total	10